

WHAT IS CLAIMED IS:

1. A cap device for a bottle, said cap device comprising:

- a cap body defining a cavity therein to contain an additive, said cap body being
- 5 removeably tightened to an externally threaded mouth of said bottle,
- a funnel part integrally formed in the cap body to discharge the additive from the cavity into the bottle through a lower end thereof, an opening formed at said lower end of said funnel part;
- a vent hole formed at a top surface of the cap body;
- a sheet of breakable material attached to the lower end of the funnel part to close the
- 10 opening formed at said lower end of the funnel part;
- a valve cock provided at the vent hole of the cap body to open or close the vent hole;
- a projection provided at a predetermined position on the mouth of the bottle; said projection formed to engage and move said valve cock from a position closing said vent hole to open said vent hole when said cap body is rotated in a first predetermined direction to move said
- 15 cap body downward relative to the mouth of the bottle; and,
- a valve means placed in a neck of said bottle, said valve means having a structure capable of allowing a liquid to pass through said valve means, said valve means formed to press against and break the sheet of breakable material when the cap body is rotated in the first predetermined direction.

20

2. The cap device for bottles according to claim 1, wherein the valve means comprises:

- a conical valve part formed to thrust the breakable sheet upward to break the sheet of breakable material when the cap body is rotated in the first predetermined direction;
- a plurality of radial ribs extending outward from an external surface of the conical valve
- 25 part in radial directions; and,

a ring integrated with outside ends of the radial ribs so as to be placed in the neck of the bottle.

3. The cap device for a bottle as described in claim 2 wherein the projection of said mouth of said bottle protrudes upward from the top surface of the mouth.

4. In a bottle having a neck and an externally threaded mouth, the improvement comprising:

a cap body defining a cavity therein to contain an additive, said cap body being removablely tightened to said externally threaded mouth of said bottle,

10 a funnel part integrally formed in the cap body to discharge the additive from the cavity into the bottle through a lower end thereof, an opening formed at said lower end of said funnel part;

a vent hole formed at a top surface of the cap body;

a sheet of breakable material attached to the lower end of the funnel part to close the opening formed at said lower end of the funnel part;

15 a valve cock provided at the vent hole of the cap body to open or close the vent hole;

a projection provided at a predetermined position on the mouth of the bottle; said projection formed to engage said valve cock and move said valve cock from a position closing said vent hole to open said vent hole when said cap body is rotated in a first predetermined direction to move said cap body downward relative to the mouth of the bottle; and,

20 a valve means placed in said neck of said bottle, said valve means having a structure capable of allowing a liquid to pass through said valve means, said valve means formed to press against and break the sheet of breakable material when the cap body is rotated in the first predetermined direction.

25 5. The bottle according to claim 4, wherein the valve means comprises:

- a conical valve part formed to thrust the breakable sheet upward to break the sheet of breakable material when the cap body is rotated in the first predetermined direction;
- a plurality of radial ribs extending outward from an external surface of the conical valve part in radial directions; and,
- 5 a ring integrated with outside ends of the radial ribs so as to be placed in the neck of the bottle.

6. The bottle as described in claim 5 wherein the projection of said mouth of said bottle protrudes upward from the top surface of the mouth.

10